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The PRESIDENT said that he had long advocated the desirableness of having some British settlement upon that great north coast of Australia—the only coast of that vast region upon which there was no British settlement. Although a great many years ago they had marked upon the map of the Society of Useful Knowledge the colony of “North Australia,” no such colony had ever been formed; but now these spirited colonists of South Australia had been induced, by the vivid and no doubt accurate descriptions of one of their own countrymen, to set out on this expedition to establish themselves there by sending a ship round, and also by sending overland cattle and stock. He had mentioned that circumstance because he was sure from what fell from his Grace the Duke of Newcastle at their last Anniversary, that as the British colonists showed so much vigour and desire to occupy that country, the British Government would ere long apply to it those laws and institutions under which British people were placed.

The President then proceeded to state that the first paper to be read was one by Major Goldsmid, entitled ‘A March from Kurráchi to Gwadur.’ That country had hardly ever been explored by Englishmen. It was, however, well known to the ancients in the time of Alexander the Great. Major Goldsmid had been deputed to examine that line of country with a view of establishing the electric telegraph. It was the last link of communication of that great line, to the overland portions of which Sir Henry Rawlinson had called their attention at the last meeting of the session of 1861, when he pointed out the great importance of such a line from Constantinople to the British settlements in India. Major Goldsmid, in reading his paper, would allude to some curious archæological data connected with that country, and point out how much was known of it in times somewhat remote. Colonel Patrick Stuart, under whose direction the whole of that great and important line of electric telegraphic communication had been carried out, was present, and they should be very happy to hear some account of it from an officer who was so much distinguished in India, and of such immense service during the mutiny, in which he, in fact, subverted all the great purposes of their commanders, and without whose aid their successes might never have been obtained. Having also Sir Henry Rawlinson present, they would have such a discussion on the paper as would show its great importance.

### The Papers read were—

1. *Exploration from Kurráchi to Gwadur, along the Mekran Coast.* By Major F. GOLDSMID, F.R.G.S.

THE Expedition, of which the following is a report, was sent to survey a route near the coast of Mekran, from Kurráchi to Gwadur, with a view to a line of telegraph to be thence carried on through the territory of the Imám of Muskat, and finally either through Persia or by the valley of the Tigris to Constantinople and Europe. The journey was made between December 12, 1861, and January 29, 1862.

The country bordering on this coast, and included between 62° and 67° E. long., may aptly be described as a bare and cheerless desert, occasionally intersected by low hills, with a scanty and purely periodic supply of water.

The entire route may be conveniently divided into four parts:—

			Miles.
(1.)	From Kurráchi to Sonmeani	.. ..	45½
(2.)	„ Sonmeani to Hormara	.. ..	172½
(3.)	„ Hormara to Pusini	.. ..	91½
(4.)	„ Pusini to Gwadur	.. ..	80½
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	Total	.. ..	389½

1. The road to Sonmeani, though difficult in some places, is in dry weather passable for all loaded beasts. Water is obtainable, and indeed plentiful, at all the halting-places for small parties; other supplies must be brought from Kurráchi.

2. The road presents many difficulties to travellers from its circuitous length; the necessity for carrying all supplies from Sonmeani, the uncertainty of obtaining water at some of the halting-places, and the extremely rugged nature of the path, especially between Hingor and Hormara.

3. The road from Hormara to Pusini is at no place very difficult, though by no means through a level country. It is true the country about the Kalmat River is an extensive plain, but during rainy weather this becomes impassable, and it is consequently safer to proceed by the base of the Tullar Hills.

4. There is but one journey in which any difficulty may be experienced between Pusini and Gwadur, that of the Kurwat. The hills, through which its course lies, are of salt mud, intermingled with flaky strata of sandstone and gypsum. Their altitude is not great nor their slopes sudden, consequently for telegraphic purposes no insurmountable obstacles need be anticipated.

Great antiquarian interest attaches to the whole line of coast from Kurráchi to Bushire, and further westward. Names to be found in Arrian, Strabo, and Ptolemy, remain to the present day with little change. Of these may especially be cited Malan and Kalmut. Gwadur is supposed to mark the site of the Alam Bater of Ptolemy. The first mention of the place to be found in later years is in the Commentaries of Albuquerque. That conqueror, when at Ormuz, was requested by the Ambassador of Eumel to assist the Persian Government to recover "Guardara" from a rebellious vassal who held it by force.

The PRESIDENT was happy to find that not the least important portion of this valuable communication was comprised in the last two pages, which contained the correction to a great extent of the physical geography in the course of the rivers, their names and their relative positions; thus making it a strictly geographical communication.

SIR HENRY RAWLINSON said, the paper was interesting in two different

points of view—firstly, with regard to its own geographical merits; and secondly, as giving some actual and tangible information on a considerable portion of the great line of the overland telegraph, of which previously they knew nothing. Major Goldsmid had truly said that this was almost a *terra incognita* before. Mr. M'Leod, he believed, was the only Englishman who had ever penetrated the country, and his observations upon it had never been published. Two years ago, when collecting statistical details with regard to the itinerary of the line, he found the greatest difficulty in getting any information regarding this particular portion, and was, in fact, obliged to rely on the reports of a native agent, who zigzagged about the country between Scinde and Gwadur in different lines, and whose reports were published in the 'Asiatic Journal,' at Bengal; but the reports were so very full of typographical errors, and altogether written in so confused a manner, that it was impossible to derive from them any real information as to the geography of the country. All this had been satisfactorily got over by the labours of Major Goldsmid. He had advanced into a country which before was unknown, and which in all the maps they found almost a blank. He had shown that it was perfectly practicable for a telegraph; and more than that, that the actual preparations for such a telegraph were now being made. The second point of interest referred to the question of telegraphic communication between England and India; and although on a previous occasion he had the honour of explaining in some detail the course of such a line, still, as a considerable period had elapsed since that time—nearly two years—a good deal of it would have fallen out of their recollection. They would see on the map a red line drawn from Constantinople showing the proposed line of telegraph as far as Kurráchi. He did not know whether the public were aware, or whether the Meeting was aware, that over nearly one-half of this line—over a very considerable portion of it at any rate—the telegraphic wire had been in actual working-order for nearly two years. He saw before him a gentleman who had a partner in Bagdad, the city of the Caliphs, and who conversed daily or weekly with him by telegraph. That was an actual proof of what could be done. The distance from London to Bagdad was greater than from Bagdad to Kurráchi. The portion they had heard described was being now laid down, and there thus remained only to fill up the gap from Gwadur to Bagdad, concerning which he hoped to hear some particulars from Colonel Patrick Stuart, who was entrusted with constructing the line. An alternative line was also under consideration. It was well known to all practical people as a point of the greatest possible importance to have alternative lines, in order that, if one broke down, there should be no interruption of communication. It was only after telegraphic communication was once established that its full value was recognised; and if telegraphic communication were thus once established with India, and all the mercantile transactions between the two countries depended on one line, it might be understood what excessive loss, disappointment, vexation, and, he might say, ruin there would be if any sudden interruption occurred. He therefore believed that the public generally would be inclined to support the Government in dealing with an alternative line, and endeavouring to provide against the possible stoppage of communication when once established. The general line now under discussion was to run from Constantinople through the Turkish empire to Bagdad, and thence to Kurráchi. As far as Bagdad it was in working order; but between Bagdad and the Persian Gulf there was a line of country which was peculiarly difficult, not to the engineer, but politically, because it was in the hands of certain Arab tribes, who were perhaps the most unruly and troublesome people in all Western Asia. Those tribes were never quiet for two years together; and if the work depended on the Turkish Government alone, the line could never be carried through the country. He believed, however, that the Turkish Government would be content to leave arrange-

ments, in a measure, in English hands; and there was thus a hope that the Arabs would, as they had often done before, fall in with our views, and perhaps help, not only in laying down the line, but in preserving it, on receiving a certain payment for their services. That, however, was not a certainty. He had no doubt the line would be laid; but whether it could be preserved intact was a matter of doubt. The shores of the Persian Gulf presented another difficulty. The most convenient point for carrying the line would be the mouth of the Euphrates; but that locality was excessively unhealthy, and the maintenance of a permanent European establishment there was almost impossible. They might, however, have European attendants during the healthy months, and then natives might be left in charge. Beyond this point the line was to be submarine; and at present their experience of submarine lines was far from satisfactory. Improvements, however, were being made daily, and it was hoped, by superior methods of insulation, to arrive at some certainty of result; but at present, as they all knew, submarine lines were liable to constant interruption. He was moreover given to understand that when the submarine line was once established, there would be no occasion for any intermediate station—that it would not indeed be necessary that the lines should be laid down in small divisions, and that any political embarrassment arising therefrom would be thus avoided. It would be quite possible to send messages from the marine terminus at the mouth of the Persian Gulf to Bunder Abbas, if not to Gwadur itself. At the mouth of the Persian Gulf there was certainly to be a repeating station. In order to provide against accidents, they were also considering an alternative line, which, in his former paper, he took to be the main line, thinking the other would be found to be absolutely impossible. The alternative line made a considerable angle if continued from Bagdad; but they must remember that distance was of no great consequence in telegraphic communication, as far as time was concerned; its only disadvantage being the additional expense for wires and material. It was proposed then to run the alternative line from Bagdad to Teheran, and thence southwards to Bushire. It had been intended at one time to extend it down to the mouth of the Persian Gulf; but that part of the country was now found to be impracticable: consequently the line would run merely to Bushire; and it was still his impression that ultimately this communication through Persia would be found to be the line upon which the greatest dependence was to be placed. Its only disadvantage was its being in the hands of a foreign country, and thus liable to political dislocation; but so long as matters remained *in statu quo*, messages could be sent with perfect safety. He would only remind them, in conclusion, of the real importance of the work. They had been talking about telegraphic communication with India for many years past, and yet year went on after year and nothing was done. In the mean time the Russians were running their line right through Asia, and had approached nearly to the Chinese frontier: their line from St. Petersburg indeed would in a very short time extend to the mouth of the Amūr and to Peking. It seemed strange that Russia should be thus able to carry her lines to this vast extent with comparatively little object in view, and that the mighty empire of England, with her great Indian dependency, which had been often said to be the brightest gem in her crown, should not be able to accomplish a telegraphic line between the two countries. He congratulated the Meeting in particular, and the country in general, that preparations were at last being made for the construction of the line, and also that its formation was entrusted to so thoroughly competent an officer as Colonel Stuart.

COLONEL PATRICK STUART said, the first real physical difficulty of the line commenced at Hinglaj, and it was still doubtful whether a land line could be practically constructed there, and kept up in a way that would be reliable as an unsupported link in such an important chain of communication as that

between India and Europe. That contingency had been provided for to a certain extent, because the tract of country that really offered those difficulties was not more than 16 to 18 miles in length. There was a bold headland of from 1400 to 1600 feet in height, which he visited last year, overhanging the sea; and between it and the sea it was impossible to carry the line. The cliffs, from their sandy formation, were continually falling down in loose lumps which would destroy any line that might be carried along the surface below. A submarine cable 20 miles in length, coated with india rubber, was sent out some months ago, which would, if the difficulty of carrying the line inland continued to be the same, be laid under water along that part of the coast. Sir Henry Rawlinson had mentioned as a wonder that the Russians were able to carry out their lines so quickly. The fact was the whole country was their own; they had to ask no permission. We had been able to commence, and to set to work; and if there had been no political difficulties, it would have been done long ago. These difficulties could not in every case be got over; but it so happened along the whole of that coast the conditions generally were more favourable for a submarine cable than, with the one exception of temperature, any known coast in the world. The sole objection might be that the depths were a little too small. In the Persian Gulf they had a depth rarely exceeding 50 fathoms, and the average depth along the line was from 25, 30, to 38 fathoms. With regard to the cable proposed to be laid between Gwadar and the mouth of the Gulf the difficulties were a little greater, because at a distance of from 8, 10, 20, or 25 miles from the coast the bottom, although uniformly of soft sand, increased very rapidly in depth, and the cable would have to be laid rather tortuously in order to keep it within the depths selected as necessary. If the Persian line could not soon be completed, it was proposed to have a terminus near the mouth of the Euphrates, and at a point to which river steamers could always have access; and it was hoped that by this means we might be brought within two days' communication of India. Even if the Arab tribes could not be conciliated, communication would be delayed only by the time the steamer would take to run from Bagdad down the Tigris. It was always recognised as a most important thing to diminish, as far as possible, the temptation that the stores offered to pillagers. Partly with that view, and also to prevent oxidization, the wire was covered with zinc. This the Arabs were unable to weld, or to use for tying up bundles, on account of its thickness. It had another advantage; being the only metal in that country that was galvanized, it could always be recognised if stolen. If all went on well, long before this time next year the whole line throughout, including the part from Bagdad down to Lower Mesopotamia, would be completed, and the duplicate line through Persia in a few months later.

CAPTAIN CHAMPNEYS said he had travelled with Colonel Stuart from Bushire to Shiraz, and thence to Teheran, and along that line they met with no difficulties of any description. The necessary arrangements were now being made with the Persian Government to carry out the line.

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The second Paper read was—

2. *On the Harbour of Sedashagur; and Remarks on the Sea Ports of India.*

By Inspector DUNCAN MACPHERSON, M.D., F.R.G.S.

BEGINNING at Calcutta, we find the East India Irrigation Company engaged in great works from the Ganges to the Mahanuddy, near Cuttack, a river already navigable for small craft near its mouth.